Tree Survey & Arboricultural Report for :

Development Implications
30a Highgate Road
London

Produced for:
Chassay Last Architects

Prepared by:
Hal Appleyard
Dip. Arb. (RFS)., F.Arbor.A. MICFor

Date: 8th September 2011

Reference:
ha/aia1/e/30ahighgaterd

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Contents

Appendices

1.0 Instructions

1.1 I have been instructed by Chassay Last Architects to assess the trees plotted on the survey plan provided to us, in accordance with the principles of BS 5837:2005 'Trees in Relation to Construction – Recommendations' (the BS).

1.2 I am to prepare this report in a format that can be used for assisting in the design of development layouts but which can also be submitted to the Local Planning Authority to accompany a planning application. As such the trees within and those of significance, which are adjacent to the site have been listed within a Tree Survey Schedule. This report is to be considered as a preliminary assessment of the trees in relation to proposed development and does not include detailed recommendations for tree preservation during and after construction.

1.3 The purpose of the this report is to clearly identify the quality of the tree stock, their contribution to public amenity and the constraints particular trees may offer to the site in terms of proposed development.

2.0 Tree Survey and Assessment

2.1 I have visually inspected those trees identified on the tree survey plan attached at Appendix 2. Owing to inaccessibility to many private gardens abutting the site, no trees have been accurately plotted but their positions are deemed to be a fair representation. Each tree has been assessed from beyond the site boundary and beyond the site in which the tree grows. No other assessment has been carried out.

2.2 Whilst all the significant trees have been assessed, this report does not include discussion in respect of all vegetation, including some small and insignificant trees such as shrubs, some small garden ornamental trees and garden fruit trees on or near to the site. However I have made general comments about lower storey trees and shrubs where appropriate. Some trees may have been grouped rather than individually assessed. Notes are made on the tree survey plan where this assists with the clarity of this report.

2.3 The trees have been detailed in the Tree Survey Schedule at **Appendix 1** to include their identification number, which corresponds to their position on the site, species (English name), an estimated height, an average measurement of the canopy radius spread (aspect initials are included where the canopy is asymmetrical), height above ground level of lowest branches, an assessment of

the tree's maturity, a measured trunk diameter at 1.5m above ground level and calculated root protection radius and area (Table 2 of the BS), the tree's condition, an assessment of the tree's effective longevity, a quality grading in accordance with the guidance set out in Table 1of the BS and some relevant comments regarding each tree where this is helpful.

2.4 The trees were inspected on 10th August 2011 and include six tree records. Some notes may be made upon the plan in respect of smaller trees and other vegetation. Notes to the Schedules are included in **Appendix 1**. The positions of the recorded trees are shown on the tree survey plan at **Appendix 2**.

2.5 Included at **Appendix 3** is a section of the BS. It refers to the tree survey grading system at Table 1. For clarity, the grading system is summarised as follows:

A grade – trees of high quality and value, effective for more than 40 years
B grade – trees of moderate quality and value, effective for more than 20 years
C grade – trees of low quality and value, effective for 10 or more years
R grade – trees for removal (effective for less than 10 years)

A full hazard assessment of the trees (including for example the assessment of decay or defects and its implications), has not been undertaken as this information is considered beyond the scope of this report. Naturally, any obvious hazards have been identified in the schedule and, I recommend that these are acted upon as soon as practicable.

2.6 I draw your attention to the facility within the BS for hard standing areas, (e.g. drives, parking bays and paths) to be constructed within the assessed root protection area. This will be subject to arboricultural assessment and implementation of specially engineered construction methods. In addition, the root protection area can be manoeuvred around the tree to a tolerance of 20% where considered appropriate and where the total **root protection area** is not reduced. The root protection area is the area surrounding a tree, which contains sufficient rooting volume to ensure the survival of the tree. The area is measured in m^2.

2.7 In addition, it may be acceptable for the construction of substantial structures within the root protection area of retained trees. It will be important however, to consider at the outset of design, that continuous open trenching will not be acceptable within the root protection area set out by the arboriculturalist.

However, subject to arboricultural advice, foundations involving piles, pads or slabs may be engineered to avoid conflicts with retained trees.

2.8 The root morphology of trees in ideal conditions is one where roots radiate out from the trunk centre relatively evenly. Where subterranean obstacles occur, such as foundations, retaining structures, drains and kerbs, roots are readily deflected away. Some roots will explore deeper soil horizons in a bid to overcome the obstacle but soon find the depth inhospitable for normal growth. Consequently, roots will run at roughly the same depth (up to around 1m) along the length of the obstacle. This will mean that structures that are to be formed beyond the likely root pattern, they and the tree is unlikely to be affected.

2.8 It is also to be recognised in the design layout that it will be appropriate to provide a realistic juxtaposition between trees identified for retention and any proposed habitable development or the requirement for deep excavations. Consideration will be given to a potential for retained trees to increase in size and the implications this may have on structures or living conditions. The design will make a suitable balance between the benefits trees offer to the scheme, the potential for understandable inconvenience and the most efficient use of land.

2.9 Further notes relating to the Tree Survey are included below.

3.0 Legal Tree Protection

3.1 As yet, no specific information has been provided in respect of any existing Tree Preservation Order (TPO) applied to the site. In addition, I am not aware of tree protection afforded by their growing within a Conservation Area. Any works to trees covered by either a TPO, Conservation Area status or are afforded protection by existing planning conditions will need to be approved by the Local Planning Authority prior to commencement.

3.2 Although branches, which hangover another's land can be pruned back to the boundary, it is normal to provide the tree owner with an opportunity to make their own arrangements for tree pruning. Trees, which are legally protected are not immune for their protection simply because they over grow another's land and the necessary authorisation would need to be obtained prior to any pruning work commencing.

3.3 Pruning or felling trees will need to comply with relevant, Health and Safety Wildlife and Environmental legislation.

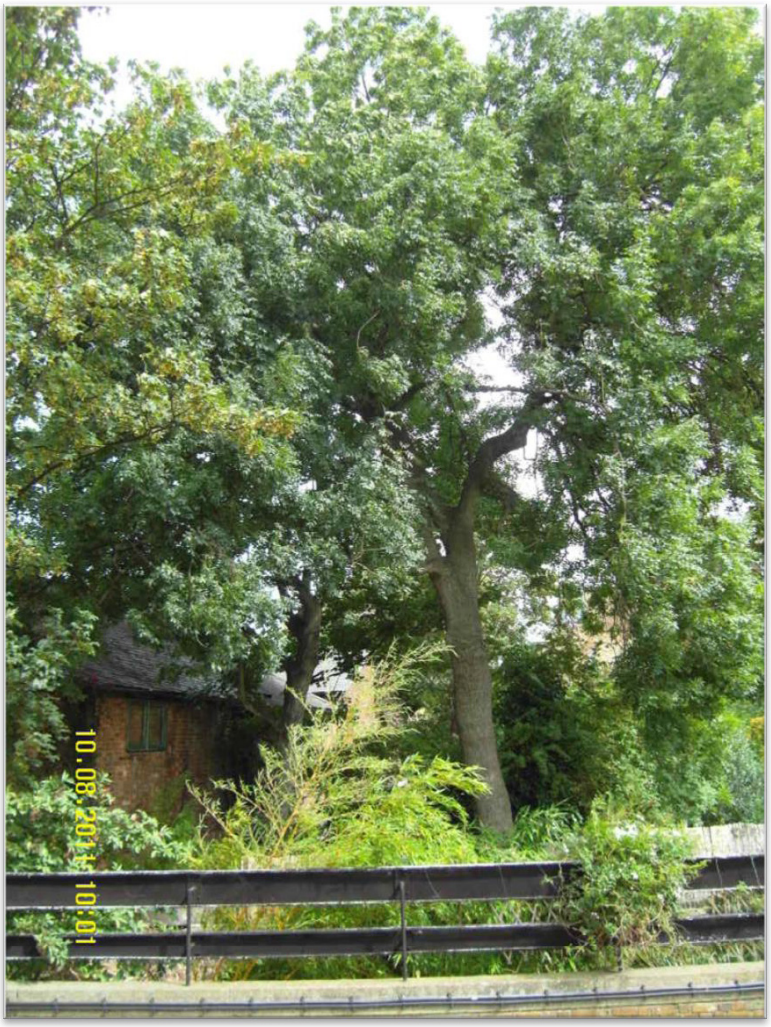
4.0 General Site Description

4.1 The site comprises commercial offices, workshops and associated storage in two-storey buildings arranged in a 'horseshoe' formation. The buildings abut the rear gardens of residential houses and flats to their north, east and west. A block of flats is located to the south west.

4.2 The site is accessible via a short concrete driveway leading from Highgate Road.

4.3 Whilst the site itself is devoid of any significant inclines, the neighbouring land is dips gently from south to north and from east to west. As a consequence the eastern elevations act as retaining walls to soil in the residential rear gardens of Fortess Road.

View from west looking over site. Gardens contain some shrubs and small trees



The trees to the east of the site are more mature, over-hang and are positioned much closer.

5.0 Tree Appraisal

5.1 The primary details of the trees are provided in accordance with BS 5837:2005 'Trees in Relation to Construction - Recommendations' and are included at **Appendix 1**. Additional notes are provided below.

5.2 Of the trees that could be readily viewed from the neighbouring fire station, the Ash T2 is the best quality and which provides the most effective amenity. The remainder of the trees on the east are self seeded Sycamore trees, which have, by neglect grown quite large and over-hang the roof of the existing buildings.

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5.3 I have shown the BS root protection areas on the attached plan but make the note that when these extend past the eastern boundary to the site for example, it is most unlikely to find significant roots (i.e. roots, which if lost, would affect the trees' condition), within the footprint of the existing buildings. As a result, I do not expect that construction within the confines of the site will have any material impact upon tree roots and therefore tree condition.

5.4 It is true however that branches have been permitted to grow out toward the light, over the roof of the buildings (see image above) and some of these should be pruned carefully back before new buildings are erected. Although the Sycamore trees are note the best specimens, they do perform a screening function, which is no doubt cherished by the tree owners and other residents, particularly in Fortess Road. Consequently, pruning the trees is best restricted to removal or shortening of selected branches, which over-hang to the greatest extent. Other, subordinate branches and low trunk growth, is best retained in my view, in order to continue to contribute to the screening effect.

5.7 In summary, the largest trees are growing in land to the east and north of the site, and which are rooted within neighbouring, residential gardens. Whilst construction within the site is unlikely to affect the trees in any way, the over-hanging branches are likely to cause conflicts and which are best pruned back in advance of any construction works.

6.0 Implications and Impact of Scheme on Trees

6.1 As described above, the implications of proposed construction upon the, off-site boundary trees are restricted to the aerial parts, i.e. the over-hanging branches. This is not, however to completely ignore the matter of any exposed roots, resulting from removing any existing retaining walls (particularly to the east), should not be afforded effective protection. This can be achieved relatively simply by following removal of the retaining brickwork/retaining structure, the adjacent soil and root mass (emanating from the nearest trees T1-T5), should be covered with material (preferably moist), which will prevent excessive soil/root desiccation and death.

6.2 Additionally, it will be prudent to erect robust hoarding between the site's boundary and the neighbouring land. This will be to prevent debris falling onto the adjacent land and to afford a protective barrier between the site and the trees. An example of recommended tree protection is provided at **Appendix 4**.

6.3 As is normal when building near to trees and within the notional root protection area, it will be prudent to appoint an arboriculturist to oversee any demolition work, where roots may be suspected of existing. The supervisory role will assist in limiting the risks of inadvertent damage to tree roots. An example of a site monitoring (tree protection) record is enclosed at **Appendix 5**.

6.4 I have set out below a table of tree works recommendations:

Table 1 – Recommended Tree Works

Tree Works (Spec.)	Tree Nos	Visual Landscape Impact of Works*	Available Replacement Planting(Y/N)	Comments
Cut back from existing roof/boundary line* (02)	T1-T5	Low	-	*Complete pruning off the boundary is unlikely to be achievable and retain effective amenity. Cutting back will be reasonable and not detrimental.
Crown lift to 5m (west side)	T1-T5	Low	-	Remove lowest branches over the site and retain low growth on the eastern side of trees T1-T4 and northern side for T5.
Total		Low	-	-

*This is a preliminary visual appraisal based upon the opinion of the author having inspected the trees in the context of their current surroundings. – None (no change or beneficial impact) Negligible or indiscernible difference to treed landscape; Low – Noticeable but mitigated by retention of other landscape trees and features; Medium – Obvious but temporary alteration to the treed landscape; High – Obvious and permanent alteration to the landscape.

Visual receptors include the public or community at large, residents, visitors or other groups of viewers together with the visual amenity of potentially affected people.

Specifications for recommended tree works:

General

All work is to conform to BS 3998:2010 'Tree work – Recommendations' and with current arboricultural best practice. Tree works are to be undertaken by a professional and specialist arboricultural contractor, who carries the appropriate experience and insurance cover, equipment and PPE. All works and processes are to comply with all relevant Wildlife, Environmental, Conservation and Health and Safety legislation.

01. Crown reduction will include reducing the height and spread of a tree's canopy (branching structure) whilst retaining the tree's natural tree form (species determined). The amount of reduction will be referred to as a percentage of the whole (canopy) combined with guidance on metre length e.g. 20% (up to 2m) for a 10m high canopy (excludes the ground clearance). Crown reduction work will be undertaken for a specific purpose which may include containing tree growth in a given location or reducing wind purchase and stress.

02. Part reduction include pruning back from structures or boundaries and which is normally applied to no more than two sides of a tree's canopy. The amount of pruning is specified in metres. The result form will be even and provide a framework for re-growth in an even form. The extent of pruning will not impinge upon tree condition and seek to preserve so far as possible, the natural outline of the tree, which is species determined.

03. Crown Cleaning involves the removal of all dead wood small and large diameter, stubs and broken branches. Some small, densely arranged shoots (including epicormic shoots) will be thinned out or removed as recommended.

04. Crown lifting includes the removal of the lowest lateral branches and shoots, (which would not result in irrevocable tree injury), to a specific height above ground level measured in metres.

7.0 Conclusions

7.1 I have inspected the trees in proximity to the existing buildings and I have reviewed the proposed plans. I note that trees on the western and northern side of the site are too remote to be directly at risk of damage from construction works.

7.2 Trees growing to the east of the site and proposals however, possess over-hanging branches, which should be carefully pruned back off the roof and away from the boundary line so far as reasonably practicable.

7.3 Roots from the eastern and northern trees are most unlikely to extend into the footprint of the site because they will be blocked by the existing, elevation and retaining walls.

7.4 Subject to implementation of the recommended tree pruning works and protection measures, which can be readily controlled by standard planning conditions, I am content that no lasting harm will come to the trees, which contribute to local amenity.

8.0 Summary Recommendations

1. Undertake tree pruning work
2. Erect tree protection fencing
3. Appoint arboricultural supervisor
4. Cover exposed roots and soil with material.
5. Monitor works within the vicinity of trees during demolition and construction processes.

Limitation

No assessment of the soils or wood tissue has been sent for laboratory analysis unless specifically stated. Our assessments are based on professional experience and expert observation at the time of the inspection. No liability can be assumed to rest with ACS Consulting should conditions alter after our inspections.

No attempt has been made us to ascertain the presence of any legal protection that might be afforded to the trees in the form of either a Tree Preservation Order of Conservation Area. Prior to the implementation of any works I strongly recommend that the Local Authority be consulted to obtain any necessary consent.

We must be informed immediately of any alterations to plans or site features upon which we have based our assessments and or advice. This may affect the report and or any recommendations.

We recommend that your trees should be inspected regularly by professionals as part of prudent tree management programme. We recommend that all trees be re-inspected within 3yrs maximum or the specific time scale provided within the report. Following inspection recommendations are to be carried out within the timescale provided, which should be treated as a maximum.

This report has been prepared for the sole use and benefit of the client. Any liability of ACS Consulting shall not be extended to any third party.

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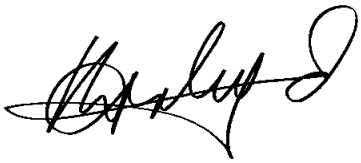

Hal Appleyard
8th September 2011

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APPENDIX 1

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Tree Survey Schedule

Site:30a Highgate Rd, London, N6

Surveyor:H. Appleyard

Date:10th August 2011

Ref:ts1/30ahighgaterd

Tree No.	English Name	Height	Crown Spread	Ground Clearance	Age Class	Stem Diameter	Protection Multiplier	Protection Radius	Growth Vitality	Structural Condition	Landscape Contribution	B.S. Cat	Sub Cat	Useful Life	Observations
T1	Sycamore	10	3 4 3 3	2.5	Mature	350e	12	4.2	Normal	Good	Medium	C	1,2	20-40	Off-site tree Over hanging branches Probably self sown; offers screening properties; full inspection inhibited by inaccessibility
T2	Ash, Common	13	5 5 5 5	3.5	Mature	550e	12	6.6	Normal	Good	Medium	B	1,2	20-40	Off-site tree Over hanging branches branches over-hang site by around 2m; usual dead wood; open crown form; full inspection inhibited by inaccessibility
T3	Sycamore	9	4 4 3 4	3	Mature	500e	12	6.0	Normal	Good	Low	C	1,2	20-40	Off-site tree Over hanging branches Over-hangs site by around 3.5m; full inspection inhibited by inaccessibility
T4	Sycamore	15	4 4 4 4	3.5	Mature	400e	12	4.8	Normal	Good	Low	C	1,2	20-40	Off-site tree Over hanging branches Boundary self-set tree; some screening properties; full inspection inhibited by inaccessibility
T5	Sycamore	15	4 4 4 4	3.5	Mature	400e	12	4.8	Normal	Good	Low	C	1,2	20-40	Off-site tree Self sown Boundary self-set tree; some screening properties; inspection inhibited by inaccessibility
T6	Apple, Crab	7	3 3 2 3	2	Mature	260	12	3.1	Normal	Good	Medium	C	1,2	20-40	Street tree One-sided form Adjacent to access road

Notes:

1. Height describes the approximate height of the tree in meters from ground level.
2. The Crown Spread refers to the crown radius in meters from the stem centre and is shown above on each of the four compass points (i.e. N, E, S, W) clockwise.
3. Ground Clearance is the height in meters of crown clearance above adjacent ground level.
4. Stem Diameter is the diameter of the stem measured in millimetres at 1.5m from ground level or just above ground level for multi stemmed trees. The diameter may be estimated (e), where access is restricted. An average (a) may be taken for tree groups. A full inspection is always recommended.
5. Protection Multiplier is 12 for single stemmed and 10 for multi-stemmed trees.
6. Protection Radius is a radial distance measured from the trunk centre and is used to calculate the BS RPA.
7. Growth Vitality - Normal growth, Moderate (below normal), Poor (sparse/weak), Dead (dead or dying tree).
8. Structural Condition - Good (no or only minor defects), Fair (remediable defects), Poor - Major defects present or suspected.
9. Landscape Contribution - High (prominent landscape feature), Medium (visible in landscape), Low (secluded/among other trees).
10. B.S. Cat. refers to British Standard 5837:2005 Table 1 category and refers to tree/group quality and value; 'A' - High, 'B' - Moderate, 'C' - Low, 'R' - Remove or very poor quality.
11. Sub Cat refers to the retention criteria values where 1 is Arboricultural, 2 is Landscape and 3 is Cultural including Conservation/ecological, historic and commemorative.
12. Useful Life is the tree's estimated remaining effective contribution in years.

APPENDIX 2

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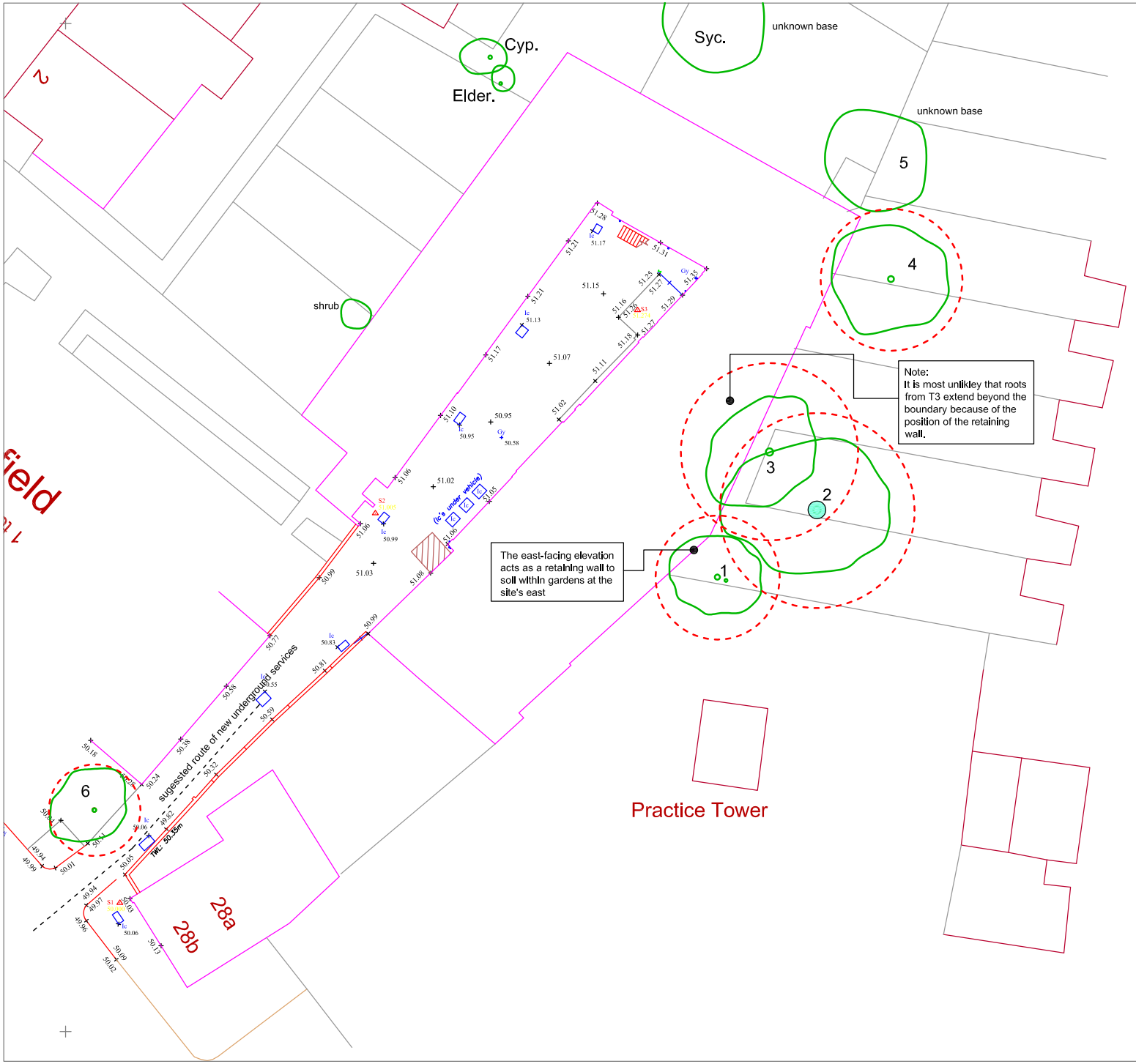

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Indicative

BS Root Protection Area, (RPA) shown uniform here but site features such as roadways, kerb and foundations, may modify root patterns and therefore the RPA shape

The BS rooting areas are to remain free from construction works which has the potential to damage or remove roots to an extent which may affect the condition of the tree.

A grade trees

B grade trees

C grade trees (clear)

R grade trees

The position of the off site trees is approximate but deemed to be a fair representation.

Removal of the retaining walls may expose roots growing with the retained soil. Roots and soil should be covered, immediately with material (preferably moist) to prevent root desiccation.

APPENDIX 3

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Table 1 — Cascade chart for tree quality assessment

TREES FOR REMOVAL		
Category and definition	**Criteria**	**Identification on plan**
Category R Those in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management	• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other R category trees (i.e. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline • Trees infected with pathogens of significance to the health and/or safety of other trees nearby (e.g. Dutch elm disease), or very low quality trees suppressing adjacent trees of better quality NOTE Habitat reinstatement may be appropriate (e.g. R category tree used as a bat roost: installation of bat box in nearby tree).	DARK RED

TREES TO BE CONSIDERED FOR RETENTION				
Category and definition	**Criteria — Subcategories**			**Identification on plan**
	1 Mainly arboricultural values	**2 Mainly landscape values**	**3 Mainly cultural values, including conservation**	
Category A **Those of high quality and value:** in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested)	Trees that are particularly good examples of their species, especially if rare or unusual, or essential components of groups, or of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands which provide a definite screening or softening effect to the locality in relation to views into or out of the site, or those of particular visual importance (e.g. avenues or other arboricultural features assessed as groups)	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	LIGHT GREEN
Category B **Those of moderate quality and value:** those in such a condition as to make a significant contribution (a minimum of 20 years is suggested)	Trees that might be included in the high category, but are downgraded because of impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage)	Trees present in numbers, usually as groups or woodlands, such that they form distinct landscape features, thereby attracting a higher collective rating than they might as individuals but which are not, individually, essential components of formal or semi-formal arboricultural features (e.g. trees of moderate quality within an avenue that includes better, A category specimens), or trees situated mainly internally to the site, therefore individually having little visual impact on the wider locality	Trees with clearly identifiable conservation or other cultural benefits	MID BLUE
Category C **Those of low quality and value:** currently in adequate condition to remain until new planting could be established (a minimum of 10 years is suggested), or young trees with a stem diameter below 150 mm	Trees not qualifying in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value, and/or trees offering low or only temporary screening benefit	Trees with very limited conservation or other cultural benefits	GREY
	NOTE Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150 mm should be considered for relocation.			

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Tree Protection Fencing

Specifications (specifically identified by outline box)

2.4m Hoarding

3.0m 100 X 100mm square wooden posts
3 X 38 X 87mm wooden rails affixed to posts
2.4m X 1200 outside grade ply panels (12mm) affixed to rails.
50 X 100mm angled supporting struts affixed internally (quantity as required).

(Supporting posts fixed into position using concrete. All post holes to be hand excavated. Post holes to be no larger than 300 X 300mm.)

Where it is not possible to insert post holes into the ground (e.g. existing hard surfacing) alternative support for posts, such as concrete-filled drums, may be used.

Heras Fencing

Heras fencing describes the 2.4m galvanised steel mesh panelled fencing normally supplied with pre-cast concrete bases. **Bases are to be replaced with a fixed frame to which panels are clamped/ firmly fixed.** For extra stability, scaffold poles/4x4 wooden posts are to be firmed into the ground as supporting posts and supporting struts are to be attached at a 45 degree angle on the 'tree-side' of the fencing and fixed into the ground. Supporting posts will be braced at the top and base for added support.

Example 1.
Heras Fencing with supporting by a scaffold framework fixed (tree side) for extra support.

Example 2.
Hoarding-style fencing with robust wooden posts with supports to ensure minimal movement.

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APPENDIX 5

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Arboricultural Site Supervision

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Site: 1 Hyde Park, London
Inspected By: H .Applevard
Client: RPC
Site Agent: Shaun Clark

Date of Inspection: 15/02/2007
Time of Inspection: 3:30pm

Tree Protective Fencing

Tree protection in correct location

Comments/Action
No action at this time

Effective fencing in position

Agreed Construction Exclusion Zone

No debris within construction exclusion zone

Comments/Action
No action at this time

Amendments to Documentation Required

No amendments required

Comments/Action
Building works outside scope of Method Statement

Fencing with signs

Remedial Works

General Comments

Tree protection and on-site supervsion effective and understood.